UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,401	11/21/2003	Chatschik Bisdikian	YOR920030233US1	9742

35060 7590 08/20/2009

THE LAW OFFICE OF IDO TUCHMAN
ECM #72212
PO Box 4668
New York, NY 10163-4668

EXAMINER	
ZHE, MENG YAO	

ART UNIT	PAPER NUMBER
2195	

NOTIFICATION DATE	DELIVERY MODE
08/20/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pair@tuchmanlaw.com
idotuchman@gmail.com

Office Action Summary	Application No.	Applicant(s)	
	10/718,401	BISDIKIAN ET AL.	
	Examiner	Art Unit	
	MENGYAO ZHE	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-35 are presented for examination.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following claim languages are unclear and indefinite:

i) Claim 2, it is uncertain what a decentralized protocol is <i.e. how is the system deciding how to distribute the workload? It seems that there is a centralized entity that is doing the identification of a candidate to receive the workload? If this is true, how is it using a decentralized protocol? Is it centralized or decentralized?>.

ii) Claim 9, it is uncertain what is meant by generating a consolidated key identifier such that outputs of workload units belonging to the consolidated workload group share an identical sequence of values at a specified depth value of the consolidated key identifier <i.e. this limitation is confusingly stated? Is there another entity that is telling the system how

many tasks to merge? If A generates A.a and A.b which each generates A.a.1, A.a.2 and A.b.1, A.b.2, then is there a controller that says that task must be merged at the A level such that A.a.1, A.a.2 and A.b.1, A.b.2 all merge back to A?>

Claims 10, 14, 20, 21, 32 have the same deficiencies as claim 9 above.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 9-11, 15-22, 24-30, 32, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjornson et al., Pub No. 2002/0194173 (hereafter Bjornson) in view of Vandeweerd et al., Pub. No. 2003/0086426 (hereafter Vandeweerd).

4. Bjornson was cited in the previous office action.

5. As per claims 1, 15, 25, Bjornson teaches a method for dynamically adjusting a workload of an active server, the method comprising:

Dividing the workload into a collection of workload units, Associating the active server (Para 54: each worker computer corresponds to a server) with at least one parent workload group (Fig 5, unit a is one example of a parent workload group), the parent workload group including the collection of workload units such that the collection of workload units belonging to the parent workload group share an identical sequence of values at a specified depth value of their key identifiers, the identical sequence of values defining a group key identifier associated with the parent workload group (Fig 5: the parent workload group such as Task1 has a collection of workload units such as Task1.B and Task1.A where at the depth of 2 the two subtasks, Task1.B and Task1.A, share an identical sequence in the identifier, which is Task1 in this case);

Independently determining by the active server that an overload condition exists at the active server (Para 60);

If the overload condition exists: increasing the depth value of the parent workload group such that at least two child workload groups are identified (Para 60, 61);

Assigning a target server to manage at least one of the child workload groups (Para 56, 60).

Bjornson teaches in Fig 5 that each unit including its own key identifier (Para 53, lines 4-8: each smaller task corresponds to a workload unit; units a, b, c of Fig 5: task 1, task 1.B, Task1.A) and that the key identifier is associated with the workload group. However, Bjornson does not specifically teach the figure labels from Fig 5 are actually used as key identifiers for each workload unit in the actual system.

However, Vandeweerd specifically teaches that each unit including its own key identifier and that the key identifier is structured such that the parent workload group including the collection of workload units such that the collection of workload units belonging to the parent workload group share an identical sequence of values at a specified depth value of their key identifiers, the identical sequence of values defining a group key identifier associated with the parent workload group and that this labeling scheme is actually generated in the actual system as workload unit is created for the purpose of task identification and maintaining relationships amongst tasks (Fig 22; Para 118).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have the labeling scheme of Bjornson as presented in his Fig 5 be specifically used as key identifiers for each workload unit in the actual system, as taught by Vandeweerd, because it allows for task identification and maintaining relationships amongst tasks.

6. As per claims 2, 16, and 26, Bjornson teaches if the overload condition exists, identifying at least one candidate server to which the child workload groups may be distributed using a decentralized protocol, the at least one candidate server including the target server (Paragraphs 56 and 60: one of the child is kept by the original worker computer, which corresponds to a server. The other child is added to the VSM bulletin board for another worker computer or server to take when it is not busy; Moreover the

decision of splitting the task is made by the worker computer alone, thus it is decentralized.).

7. As per claims 3, 17, and 27, Bjornson teaches requesting workload acceptance from the target server at peer level (Paragraphs 56, 60-61).

8. As per claims 4, 18, and 28, Bjornson does not specifically teach recording the parent workload group as inactive at the active server.

However, since having a bit valued indicator to indicate a work group is inactive is commonly practiced in the field of task management for the purpose of having a status indicator, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Bjornson with the specifics of recording the parent workload group as inactive at the active server, because it allows for status indication.

9. As per claims 5, 19, and 29, Bjornson teaches transferring application-specific objects corresponding to the child workload groups at peer level (Paragraphs 60-62: tasks are essentially programs that implements algorithms. The Examiner has interpreted the program to be application-specific objects. When one of the divided task is added back to the Task List, the sub-task is transferred.).

10. As per claims 6 and 30, Bjornson teaches redirecting entities operating on elements of the parent workload group to the target server managing the child workload group (Paragraph 56, 60, 71-74: database corresponds to entities. They can be split up

according to how the tasks are split up. When a sub-task with its associated database gets assigned to another worker computer, entities are redirected.).

11. As per claims 11, 22, and 34, Bjornson teaches further comprising associating the workload unit with the key identifier such that the key identifier encodes one or more attributes of the workload unit (Fig 5: Because the naming system contains the name of the parent task for each sub-task, the parent identification in a child's name corresponds to an attribute.).

12. As per claims 9, 20, and 32, Bjornson teaches

determining that an under-load condition exists at the active server (Paragraphs 95-96: limitation is set for the amount of time a worker computer is to remain idle, when it is exceeded, it is inherent that the system will know that a worker computer is under-loaded.)

identifying at least two workload groups for consolidation into a consolidated workload group (Para 91)

generating a consolidated key identifier such that outputs of workload units belonging to the consolidated workload group share an identical sequence of values at a specified depth value of the consolidated key identifier; and managing the consolidated workload group by the active server (Paragraph 69, 91 and Fig 5).

Vandeweerd teaches that the figure labeling scheme used by Bjornson maybe applied to the actual workload tasks when created in the system (see claim 1 rejection above for detailed reasoning).

13. As per claims 10 and 21, Bjornson teaches wherein generating the consolidated key identifier includes decreasing the depth value of the parent workload group such that the consolidated workload group is identified (Fig 5: please note the ID given for task blocks colored in gray.).

14. As per claim 24, Bjornson teaches an external service configured to identify at least one candidate resource to which the child workload groups may be distributed (Paragraph 56: the VSM, which are external to the worker computers governs how the task may be taken by the worker.).

15. Claims 12-14, 23, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjornson et al., Pub No. 2002/0194173 (hereafter Bjornson) in view of Vandeweerd et al., Pub. No. 2003/0086426 (hereafter Vandeweerd) further in view of Shimosato et al., Patent No. 7,024,563 (hereafter Shimosato).

16. Shimosato was cited in the previous office action.

17. As per claims 12 and 23, Bjornson teaches wherein the virtual key includes a number of masked of digits, the number of masked digits dependent on the overload

condition (Fig 5, unit c: Taskt1.A1 where the two numbers of 1s corresponds to masked of digits.).

Bjornson does not specifically teach constructing a virtual key for mapping to the target server.

However, Shimosato teaches using a constructed load-dependent virtual key as an input to a separate mapping service that returns the identity of the target server to which the workload units belonging to the virtual key should be directed for the purpose of identity mapping (Column 21, lines 37-43).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Bjornson with using a constructed load-dependent virtual key as an input to a separate mapping service that returns the identity of the target server to which the workload units belonging to the virtual key should be directed, as taught by Shimosato, because allows for identity mapping.

18. As per claim 13, Shimosato teaches using the constructed load-dependent virtual key as an input to a separate mapping service that returns the identity of the target server to which the workload units belonging to the virtual key should be directed (Column 21, lines 37-43).

19. As per claim 14, Bjornson teaches a system for running a distributed computer application whose workload can be decomposed into a set of workload units, each

workload unit including its own key identifier, over a dynamically varying set of distributed resources, the number of distributed resources involved in the distributed computer application varying dynamically in response to changes in an overall workload, the system comprising (Fig 5 and paragraph 60):

a set of active resources cooperatively managing an entire set of identifier keys constituting the overall workload, each individual active resource managing a dynamically varying group of identifier keys, each active resource independently evaluating its own workload condition and deciding on the creation to reduce its workload (Fig 5, paragraphs 60);

an overall set of resources, of which the active resources constitute a subset that can be utilized as part of the distributed computer application as needed (Paragraphs 60-61);

a set of client entities utilizing the distributed computer application, each client entity being associated with at least one identifier key, and each client entity dynamically determining the dynamically varying group of key identifiers that it currently belongs to (Fig 5);

consolidating identifier keys such that workload units belong to the consolidated workload group share an identical sequence of values at a specified depth value of the consolidated key identifier (Paragraph 69, 91 and Fig 5);

consolidating workloads together to increase its workload (Para 91).

Bjornson teaches in Fig 5 that each unit including its own key identifier (Para 53, lines 4-8: each smaller task corresponds to a workload unit; units a, b, c of Fig 5: task 1, task 1.B, Task1.A) and that the key identifier is associated with the workload group. However, Bjornson does not specifically teach the figure labels from Fig 5 are actually used as key identifiers for each workload unit in the actual system.

However, Vandeweerd specifically teaches that each unit including its own key identifier and that the key identifier is structured such that the parent workload group including the collection of workload units such that the collection of workload units belonging to the parent workload group share an identical sequence of values at a specified depth value of their key identifiers, the identical sequence of values defining a group key identifier associated with the parent workload group and that this labeling scheme is actually generated in the actual system as workload unit is created for the purpose of task identification and maintaining relationships amongst tasks (Fig 22; Para 118).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have the labeling scheme of Bjornson as presented in his Fig 5 be specifically used as key identifiers for each workload unit in the actual system, as taught by Vandeweerd, because it allows for task identification and maintaining relationships amongst tasks.

Furthermore, Shimosato teaches a mapping service configured to receive a virtual key associated with at least one of the dynamically varying group of identifier

keys as input and configured to produce an identity of a target resource from the overall resource set as an output for the purpose of identity mapping (Column 21, lines 37-43).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Bjornson in view of Vandeweerd with a mapping service configured to receive a virtual key associated with at least one of the dynamically varying group of identifier keys as input and configured to produce an identity of a target resource from the overall resource set as an output, as taught by Shimosato, because it allows for identity mapping.

20. As per claim 35, Shimosato teaches program code configured to construct a virtual key for mapping to the target resource, wherein the virtual key includes a hash value of the key identifier (Column 21, lines 37-43).

21. Claims 7-8, 31, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjornson et al., Pub No. 2002/0194173 (hereafter Bjornson) in view of in view of Vandeweerd et al., Pub. No. 2003/0086426 (hereafter Vandeweerd) further in view of Eidson, Patent No. 6,125,420 (hereafter Eidson).

22. Eidson was cited in the previous office action.

23. As per claims 7 and 31, Bjornson discloses a system that can break down a single task into different levels of sub-tasks, each with its associated identifier, so that

they may be assigned to computers according to the computer's dynamic workload. Furthermore, Bjornson teaches estimating the amount of computational resources available in each computer to see if a task needs to be broken down. Bjornson also teaches a group key identifier that indicates the nearest known active parent group to which it belongs (Fig 5; Paragraphs 60-61).

Bjornson, however is silent as to, the specifics of receiving a probe message from an entity work load unit, the entity workload unit being a member of the parent workload group, the probe message including a selected identifier key formed by selecting a depth to be associated with the entity workload unit's key identifier; and sending a response to the entity indicating the group key identifier that a current server locally determines to be the nearest known active parent group to which the element's key identifier belongs.

Eidson teaches receiving a probe message from an entity work load unit, the entity workload unit being a member of the parent workload group, the probe message including a selected identifier key formed by selecting a depth to be associated with the entity workload unit's key identifier; and sending a response to the entity indicating the group key identifier that a current server locally determines to be the nearest known active parent group to which the element's key identifier belongs for the purpose of group identification and communication between nodes and its parent groups (Abstract; Column 3, lines 1-6, lines 15-25, 38-50; Column 4, lines 5-27, 45-55).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Bjornson in view of Vandeweerd with

receiving a probe message from an entity work load unit, the entity workload unit being a member of the parent workload group, the probe message including a selected identifier key formed by selecting a depth to be associated with the entity workload unit's key identifier; and sending a response to the entity indicating the group key identifier that a current server locally determines to be the nearest known active parent group to which the element's key identifier belongs, as taught by Eidson, Because it allows for group identification and communication between nodes and its parent groups.

24. As per claim 8, Eidson teaches wherein the entity operating on a workload unit uses the response to further refine its estimate of a correct depth to be associated with the unit's key identifier; and probing another server associated with the parent key group formed by using the refined depth of the unit's key identifier (Column 3, lines 1-6, lines 15-25, 38-50).

25. As per claim 33, Bjornson teaches wherein the program code to generate the consolidated key includes program code to decrease the depth value of the parent workload group (Fig 5 and Para 69) and further teaches consolidating workload group (Para 91).

Response to Arguments

26. Applicant's arguments filed on 5/19/2009 have been fully considered but are not persuasive.

27. In the remark, the applicant argued that:

i) Bjornson does not teach the limitations of claim 2.

28. The Examiner respectfully disagrees with the applicant. As to point:

i) The claim states that the identification of a candidate is done by using a decentralized protocol, while at the same time there seems to be a centralized entity that is making the decision of how to assign the workload. This is seemingly contradictory and moreover confusing. Until this issue is fixed, the Examiner has interpreted the claim merely as obtaining workloads by individual servers as taught in Bjornson in Para 60-61.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MENGYAO ZHE whose telephone number is (571)272-6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195